Listing of Claims:

No amendments are presented to the claims at this time. This listing of claims is provided merely for convenience, and will replace all prior versions, and listings, of claims in the application:

1. (Original) A method comprising:

sensing a residual magnetization of a pole of a data transducer established by application of a data transmission current to transmit data; and

removing said residual magnetization by supplying the transducer with a demagnetizing current that decreases to a final magnitude in accordance with a selected profile.

2. (Original) The method of claim 1, wherein the sensing and removing steps are carried out at the conclusion of said application of the data transmission current and prior to a subsequent step of using the data transducer to receive data.

3. (Original) he method of claim 1, wherein the sensing step comprises detecting current induced by the residual magnetism in a conductor coupled to the pole.

4. (Original) The method of claim 3, wherein the conductor is connected to a write coil of the transducer.

5. (Original) The method of claim 1, wherein the removing step comprises applying a bi-directional, time varying current of selected frequency to the transducer that tapers to the final magnitude.

6. (Original) The method of claim 5, wherein the magnitude of the bi-directional, time varying current tapers linearly, exponentially or in a step-wise fashion.

7. (Original) The method of claim 5, wherein a frequency of the bi-directional, time varying current of the removing step changes as said current tapers to the final magnitude.

8. (Original) The method of claim 1, wherein the method comprises selecting and applying a first demagnetizing current in accordance with a first profile prior to the sensing and removing steps, and wherein the demagnetizing current of the removing step comprises a different, second demagnetizing current in accordance with a second profile.

9. (Original) The method of claim 8, wherein the second profile utilizes a different duration of elapsed time during which the second demagnetizing current is applied as compared to the first demagnetizing current.

10. (Original) The method of claim 1, wherein the profile of the demagnetizing current is selected in accordance with a control input supplied by a control circuit.

11. (Original) The method of claim 1, wherein the transducer is characterized as a recording head and the data transmitted by the head in response to the data transmission current results in a selective magnetization of a recording medium adjacent the head.

12. (Original) The method of claim 11, wherein the transducer is characterized as a perpendicular recording head which stores data to the recording medium along magnetic domains that are substantially aligned in a direction normal to a direction of movement of the recording medium with respect to the head.

13. (Original) An apparatus, comprising:

a sense circuit which senses a residual magnetization of a pole of a data transducer established by application of a data transmission current to transmit data; and

a demagnetizing current generator coupled to the sense circuit which removes said residual magnetization by supplying the transducer with a demagnetizing current selected in relation to the sensed residual magnetization.

14. (Original) The apparatus of claim 13, further comprising a data transmission current generator which applies said data transmission currents to the transducer prior to operation of the sense circuit.

15. (Original) The apparatus of claim 13, wherein the sense circuit detects current induced by the residual magnetism in a conductor coupled to the pole.

16. (Original) The apparatus of claim 13, wherein the conductor is connected to a write coil of the transducer.

17. (Original) The apparatus of claim 13, wherein the demagnetizing current generator applies a bi-directional, time varying current of selected frequency to the transducer that tapers to a final magnitude.

18. (Original) The apparatus of claim 17, wherein a frequency of the bi-directional, time varying current changes as said current tapers to the final magnitude.

19. (Original) The apparatus of claim 17, wherein the magnitude of the bi-directional, time varying current tapers linearly, exponentially or in a step-wise fashion.

20. (Original) The apparatus of claim 13, wherein the demagnetizing current generator applies a first demagnetizing current in accordance with a first profile prior to the sensing by the sense circuit, and wherein the demagnetizing current subsequently applies a different, second demagnetizing current in accordance with a second profile in response to the sensed residual magnetization.

21. (Original) The apparatus of claim 20, wherein the second profile utilizes a different duration of elapsed time during which the second demagnetizing current is applied as compared to the first demagnetizing current.

22. (Original) The apparatus of claim 13 characterized as a preamplifier driver circuit configured for use in a data storage device to supply write currents to the transducer to write data to a recording medium and detect readback signals from the transducer obtain from data previously written to the recording medium.

23. (Original) The apparatus of claim 22, wherein the transducer is characterized as a perpendicular recording head which stores data to the recording medium along magnetic domains that are substantially aligned in a direction normal to a direction of movement of the recording medium with respect to the head.

24. (Original) A preamplifier driver circuit for use in a data storage comprising:

first means for sensing a residual magnetization of a pole of a data transducing transducer established by application of a write current to write data to a recording medium; and

second means for removing said residual magnetization by supplying the transducer with a demagnetizing current selected in relation to the sensed residual magnetization.